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the table olive industry of Spain

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Units of Measure

All numerical data in this report are expressed in metric units. Metric equivalents of conventional U.S. units of measure are:

Weight

1 kilogram = 2.2046 pounds
1 quintal = 220.46 pounds
1 metric ton = 2204.6 pounds

Area

1 hectare = 2.471 acres

Foreword

Spain continues to lead the international market in the output and export of olives for table use. Current indications point toward an increase in this dominance, as both production and exports are expected to rise substantially. However, Spain will be faced with growing competition from the California industry in the U.S. market, Spain's most important outlet. As larger and larger crops are harvested in the United States, both California and Spain will be seeking new markets for their products.

This first-hand survey by the author examines the table olive industry of Spain in the light of anticipated change in competitive position, as well as the factors helping to bring about that change. Data and information presented in this report are based on material gathered by the author during a trip in November 1975 to the olive-growing regions of Spain.

The author gratefully acknowledges the cooperation of Spanish Government officials, agricultural specialists, growers and members of Spain's processing industry, as well as the assistance of the U.S. Agricultural Attaché's staff in Madrid.

Gilbert E. Sindelar
Director, Fruit and Vegetable Division,
Foreign Commodity Analysis, FAS

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The Table Olive Industry of Spain

By Franklin D. Lee

Fruit and Vegetable Division, Foreign Commodity Analysis
Foreign Agricultural Service

Current Situation

Spain's dominance of the world market in the production and export of table olives[1] remains strong but open to certain challenges. Current estimates indicate that table olive output in Spain will nearly double by the end of this decade. Exports also will increase. The majority of Spain's olive shipments will continue to flow to traditional outlets—the United States, Canada, and Western Europe. However, the anticipated increments are predicated on the assumption that the olive industry will overcome many of its current obstacles, which include:

- *Poor soils.* Many olive groves are situated on rocky, clay-like, and nutrient-deficient soils, a result of the long-standing practice of placing olive trees on land useless for production of other crops.
- *Lack of irrigation water.* This factor is perhaps the major reason for the slow development of Spain's olive industry. Average annual rainfall is only 23 inches. Because of extreme heat and dry soils, much of the rainfall evaporates.
- *Educating the farmer.* Many of the groves are family-owned and operated, and in many instances knowledge of proper cultural techniques is lacking, with resulting adverse effects on table olive output.
- *Obsolete cultural techniques.* Many groves receive inadequate care, little or no fertilizer, no irrigation, little pruning, and no treatment of disease problems—all necessary for healthy harvests.
- *Lack of development of new markets.* Well over half of Spain's olive output is shipped to the United States and Canada. This heavy dependence on limited markets could pose serious competitive problems from the United States in the future.
- *Table olive and olive oil price linkage.* There is a definite correlation between the prices paid for olive oil and table olives. When the market for oil is lucrative, many table olive producers choose to sell their olives for oil extraction rather than for processing into consumer products.
- *Improvement in processing techniques.* The industry's processing plants lack the latest available manufacturing equipment.
- *Rising labor costs.* Substantial annual increments in wage rates (pegged to advances in the consumer price index) are creating upward pressures on production costs. During 1975, Spain's minimum wage rate reportedly rose 46 percent over that of 1974.

With more than 150,000 hectares of table olive trees, Spain's olive production is characterized by wide year-to-year fluctuations. These variations are primarily a result of tree strain after bumper crops, coupled with scarcities of water and other adverse climatic factors. In the major producing regions of southern Spain, output has traditionally been marked by these drastic fluctuations. However, the past 5 years have demonstrated a substantial upward trend in production. Output during the period 1965-69 averaged 52,600 tons, compared with 46,200 tons during 1960-64 and the 1955-59 average of 60,260 tons. The average level achieved during the 1970-74 period was 104,500 tons. Preliminary estimates place the 1975 crop at a record 142,000 tons, compared with the tree-strain reduced crop of 93,000 tons in 1974. Table 2 shows Spanish table olive production by region.

Spanish table olive exports, like output, historically have fluctuated from year to year, generally following the lead of production. In some years,

[1] Table olives, as distinct from olives crushed for oil or animal feed, are defined for purposes of this report to mean olives produced solely for processing for direct human consumption. Unless otherwise noted, the term "olives" refers to olives for table use.

SPAIN'S PRINCIPAL OLIVE-PRODUCING PROVINCES

exports have topped total output, reflecting substantial stocks on hand. In any given year, well over 50 percent of Spain's olive shipments go to the U.S. and Canadian markets. Spain's table olive imports are negligible. Table 7 depicts Spain's supply and distribution of table olives from 1966.

Statistics on domestic consumption are difficult to obtain, but estimates place the average annual (1966-75) rate at about 40,875 tons. Table 7 presents the historical series for domestic consumption.

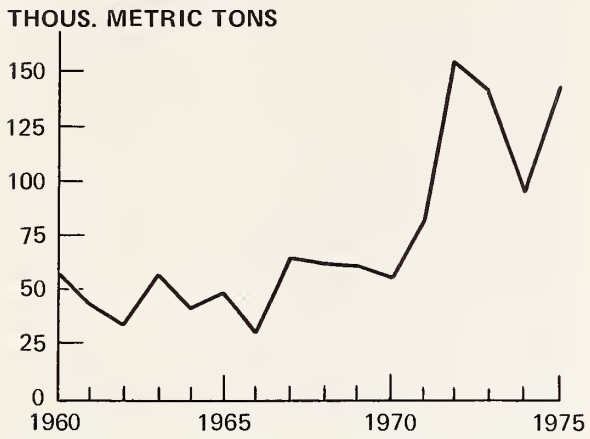
Grower prices are set by the major cooperatives as determined by the large export firms. Price levels are based on size of crop, demand for table olives, and—primarily—the price for olive oil. Similarly, export prices are set by the major export houses and are generally based on world demand and pressures of inflation. Table 8 gives average wholesale prices for selected export varieties.

Government policy toward the olive industry has traditionally been one of supporting the growers and exporters with various types of aid. Currently, the Government's support program is aimed at improving existing farms and maximizing exports to earn additional foreign exchange.

Production and Acreage

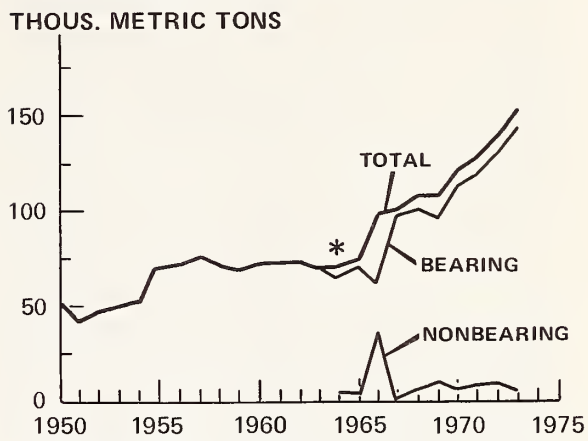
While olives of all kinds are grown throughout Spain, the commercially important table olive acreage is primarily situated in four broad regions—Andalucia in the south, Extremadura in the west, Levante in the southeast, and the Central Plateau. Production traditionally has fluctuated from year to year but has demonstrated an upward trend in recent years, averaging about 121,880 tons during 1971-75. This compares with an average of 53,960 tons during the previous 5-year period, an increase of over 126 percent. Preliminary estimates place the 1975 olive harvest at a record 142,000 tons, 53 percent above the output of 93,000 tons the year before and 1 percent more than the 140,000-ton-level achieved in 1973.

SPAIN: TABLE OLIVE PRODUCTION, 1960-75



SOURCE: SPANISH MINISTRY OF AGRICULTURE. 1975 PRELIMINARY.

SPAIN: TABLE OLIVE ACREAGE, BEARING, AND NONBEARING, 1950-75



* *BEARING AND NON BEARING DATA NOT DIFFERENTIATED PRIOR TO 1964.*
SOURCE: SPANISH MINISTRY OF AGRICULTURE.

Table 4 shows total area planted to olives in 1973 to be slightly more than 152,000 hectares, an increase of about 10 percent over the previous year's area and approximately one-fifth above that of 1971. The majority of the acreage is heavily concentrated in Andalucia, particularly in the Province of Seville, where 82,000 hectares are planted to olives.

As of 1973, 145,800 hectares or 96 percent of the acreage was bearing and 6,300 hectares were nonbearing. For the same year, about 3 percent of the bearing area was under irrigation while 141,634 hectares or 97 percent were nonirrigated. Likewise, only about 9 percent of the nonbearing area was irrigated, while 5,750 hectares, or 91 percent, had no irrigation. Additionally—as demonstrated by Table 5—yields per hectare increased significantly as more and more acreage was placed under irrigation. However, the lack of an adequate water supply for irrigation is one of the major reasons why Spain's olive production has been held at current levels. Presently, there is an industrywide effort, with some Government assistance, aimed at tapping underground water sources for irrigation purposes. To date, the program has been only marginally successful, as indicated by the low percentage of new acreage under irrigation. However, research is continuing in this direction. And, as more water becomes available, substantial increases in yields and overall output can be expected.

ANDALUCIA is the largest of Spain's major producing areas. And, indeed, the livelihood of the entire industry is dependent on developments within this region. In 1975, Andalucia accounted for 75 percent of Spain's total commercial production. In the 2 years prior to that, its shares were 68 percent and 73 percent, respectively. Output for this region is principally concentrated in Seville and Cordoba. Together, these Provinces accounted for over 90 percent of the output in Andalucia and 68 percent of the country's total crop in 1975. Also included in this region are the Provinces of Almeria, Cadiz, Granada, Huelva, Jaen, and Malaga. Their combined output comprised about 10 percent of the area's harvest while accounting for 7 percent of total olive production.

In 1973, total area planted to olives in Andalucia amounted to 97,000 hectares or 64 percent of the total acreage. Of the total 1973 acreage in Andalucia, Seville accounted for 85 percent (Table 3). Acreage data by Province for previous years are not available. However, Table 6 shows the trend in total area since 1950. The principal varieties grown in this region are Manzanilla and Gordal.

EXTREMADURA, second-largest producing region, comprises the Provinces of Badajoz and Caceres, along the eastern border of Portugal. Slightly more than 20 percent of Spain's 1975 crop and 26 percent of the 1974 harvest were produced in this region. Badajoz, the larger of the two, produces about three-fifths of the region's output. Production in this area has been relatively static, showing very slight signs of an upward trend in the past few years. The Carrasquena and Cacerena varieties, grown exclusively in this region, are produced for the domestic market.

Olive acreage in the Extremadura zone totaled 45,020 hectares in 1973—about one-third of total Spanish olive acreage for that year.

THE LEVANTE AND CENTRAL regions, situated in the southeast and midwest section of Spain, make a relatively small contribution to the total olive harvest. In 1975, their combined output amounted to only 3 percent of the total crop, compared with 5 percent the year before. The Levante region is comprised of the Provinces of Alicante, Castellon, Murcia, and Valencia. The Central region consists of Albacete, Cuidad Real, Cuenca, Guadalajara, Madrid, and Toledo Provinces.

Combined total area planted to olives in these two regions amounted to 7,604 hectares or 5 percent of the overall olive acreage in 1973. Varieties grown in the Levante region include Manzanilla, Gordal, Blanqueta and Cornicabra, with the latter two primarily used in oil processing. The Central region produces the Manzanilla and Cornicabra varieties.

Other minor producing regions include Ebro in the central northeast; the northeast area; and Duero, in the north. However, production is insignificant, as the average combined output from these regions for 1973-75 amounted to less than 2 percent of Spain's total crop. Total acreage in 1973 was 2,396 hectares, or slightly more than 1 percent of the country's total olive acreage.

Varieties

It is an almost impossible task to quantify the number of olive varieties grown in Spain. There are reported to be more than 39 known varieties in Seville alone—some important, some insignificant. This study will include only those considered important and well known in the international and Spanish domestic markets. These varieties include Manzanilla, Gordal, Hojiblanca, Morona, Rapazallo, Verdial, Aborena, Carrasquena, and Cacerena.

The **Manzanilla** and **Gordal**, the most popular of the varieties and grown almost entirely in Andalucia, are processed primarily for table use. Virtually all of the high-quality fruit is exported, primarily to the United States and Canada. The residual or the nonexport quality goes primarily to the domestic market.

The **Hojiblanca** and **Morona** varieties, also grown exclusively in Andalucia, are channeled directly to the domestic market. The Hojiblanco variety also is processed as black olives for the domestic market.

The remaining varieties are processed both as green and black, and have traditionally been exported to East European countries. The **Rapazallo, Aborena,** and **Verdial** varieties are cultivated in Andalucia, while the **Carrasquena** and **Cacerena** varieties are grown principally in the Extremadura region. Smaller quantities of most of these varieties also are grown in the Levante and Central regions.

Cultural Practices

Spain's table-olive industry principally comprises small farms scattered throughout the major producing regions. The majority of the farms are not exclusively planted to olives, but are diversified in other crops as well. Because of the historical belief that olive trees fare well on soils too poor for other crops, a number of Spain's olive groves are on soils not suitable for alternative commodity uses and are often located far from any available water source. Naturally, when rainfall is inadequate, this lack of irrigation adversely affects the quality of Spain's olive output.

Today, with some financial support from the Spanish Government, a few progressive growers are adopting advanced cultural techniques, although this shift tends to be limited to the more efficient farmers or on new acreage.

Seedlings and rootstocks—Throughout Spain, most table olive varieties are developed almost exclusively from rootstocks. Historically, farmers have grown their own seedlings; today, however, seedlings in limited quantities are available from commercial nurseries.

Pruning—This operation is performed at the discretion of the individual farmer, with the technique differing from area to area, and generally performed on a biennial basis. As in other olive-producing countries, pruning is aimed at the removal of diseased and superfluous branches to increase the quality of the olives and tree yield. The trees are generally pruned low to facilitate harvesting. Pruning generally takes place in the fall, after the harvest has been completed. As with other segments of olive production, the Government encourages proper pruning practices, providing grants to farmers who adhere to such techniques.

Cultivation—In areas where there is insufficient moisture (i.e., practically throughout the olive-producing regions of Spain), the soil is cultivated to avoid loss of moisture during the hot summer days and to store it during the rainy season. The common types of soil cultivation involve plowing (mechanically or by animal) and then leveling or permitting the furrows to remain. The type of technique varies from farm to farm and area to area, depending on average rainfall, the availability of water for irrigation, farmer's preference, etc. In general, only the more profitable farms follow closely the proper cultivating methods that would help maximize harvests.

Irrigation—Because of limited volume, water is very valuable. Thus, irrigation is generally reserved for higher valued crops such as citrus, cotton, and certain vegetables. However, in recent years there have been moves to establish new olive areas in the vicinity of

the Guadalquivir River. There are several new intensive olive plantings there, mostly under limited irrigation. These moves, coupled with the Government's search for underground water sources, bring Spain's olive acreage under irrigation to about 3 percent of total area (Table 5). In 1973, of the 152,109 hectares planted to olives, only 4,725 hectares were under irrigation—over three-fifths in the Andalucian region. The current irrigation system is basically the sprinkler method. There is some effort by both Government and industry to move toward the drip method. However, progress in this direction is slow.

Fertilization—Commercial fertilizers, when applied without sufficient moisture, can kill or damage seedlings. Since most acreage in Spain is rain-grown and rainfall is scarce, fertilizer usage is limited primarily to irrigated acreage. The use of chemical fertilizers in the olive industry has not emerged as rapidly as in other crops, primarily because of: (1) lack of adequate rainfall or irrigation, (2) the precarious economic situation of the industry, and (3) the nature of the farms.

However, in recent years chemical fertilizer utilization has been on the increase, especially in areas where table olives are grown abundantly, but particularly where irrigation is predominant. As with other cultural practices, types and application rates of fertilizers vary from area to area, depending on the farmer and water availability. In some regions, the application of organic fertilizers is still practiced. However, with the emergence of mechanization and the gradual disappearance of this natural resource, organic fertilizer use is small.

Spraying—Because of the relatively small size of most farms, commercial spraying with fungicides and insecticides is not economically feasible. However, many of the larger farms in the Seville area have initiated pest-control programs. The Spanish Government grants subsidies to farms that adhere to proper disease-control measures.

Some of the primary diseases and pests that affect olive production throughout Spain include: Peacock spot (cycloconium), a fungus disease of the leaves and to a lesser extent of the limbs and trunk; black scale (Saisetia oleae); olive fly (Dacus oleae); the kernel borer (Prays oleae); olive moth (Euzophera pinguis); elm scale (Mytilococcus ulmi); the bark beetle (Phoeotribus scarabaeoides); and the olive thrip (Leothrips oleae). Each of these is significant, depending on the area. All are serious problems to the industry and with Government assistance, control measures have been taken, primarily on the larger, more efficient farms.

Harvesting—The harvesting period generally extends from about mid-September through mid-November. Harvesting, as in California, still is essentially done by hand. The olives are picked, collected into baskets, and carefully transported on the backs of animals, in wagons, motor trucks, or flat cars to the processing plants. However, there is a continuing effort aimed at developing techniques and equipment capable of harvesting by mechanical means. Although mechanical harvesting has become commonplace in harvesting olives for oil, the need for unbruised olives has prohibited its use in the table olive industry. Industry officials believe that harvesting other than by hand will become essential, mainly because of rising labor and related production costs.

Farm Labor—Except for the larger farms, production is accomplished with a minimum of hired labor. Generally, the farm operator and his family provide the labor required. However, larger units hire some full-time and part-time employees during the harvest season. The majority of the workers come from small towns in and near the olive-producing regions. In the past, cheap labor was abundant, but recently wage rates have increased sharply as a result of a Government regulation tying wage rates to the cost-of-living index.

In November 1975, the minimum wage rate for pickers was about 4 pesetas per kilogram (3 cents per pound). The average laborer picks about 10-12 boxes of 20 kilograms daily, thereby earning $11 to $16 per day. In the late 1960's, the rate was $2-$5 per day.

Processing

Facilities—Since the raw material for the green olive industry thrives in greatest abundance in the Province of Seville, it is only natural that the vast majority of the processing plants are located there. The biggest concentration is at Dos Hermanas, a few miles outside of Seville. The majority of the plants are within commuting distance of Seville. Adequate physical facilities and plentiful labor are at hand. Also, the Port of Seville provides nearly ideal conditions for easy, relatively inexpensive movement into world markets.

The basic layout of the green olive plants does not vary greatly. Generally, all have large walled-in fermentation yards. Minor differences occur in the number and type of mechanical size graders, holding tanks, and caustic and brine storage facilities. Differences in spatial allotment for sorting, pitting, stuffing, storage, barreling, bottling, and labeling vary from plant to plant. Most are modern, clean, spacious, and well illuminated. Many of the larger plants are vertically integrated from the raw-material stage through the exporting and marketing stages. Others simply receive already processed fruit and package for

export. Throughout Spain, there are more than 140 export houses, which are expected to be combined into 14 or 15 export associations in the near future.

Methods—Spain's fruit processing is similar to California's. That is, the fruit is received, graded, cleaned, stored in large fermentation tanks until ready for further processing. These fermentation tanks are located both above and below ground, with about 20-25 percent of processed olives prepared in the below-ground tanks. The remainder are processed above ground in either traditional wooden casks (especially in the smaller plants) or large fiber glass tanks (similar to those in use in California).

For the larger plants, the move is in the direction of more underground processing, as the Spanish have found the quality of fruit thus processed to be superior. Processing vats for production of California-style black olives are nonexistent in most of the plants, as processing of this type is very limited and on the decline. This would indicate that California will continue as the world's leader in the production and export of black olives.

Equipment—Generally, most plants have some modern equipment, but many still maintain outdated facilities such as hand pitters, inefficient automatic pitters, and slow bottling and labeling operations. However, several firms are now awaiting delivery of the first modern pitter-stuffers using reconstituted pimiento. Full-scale operation of these machines is expected during the next 2 years, when all of the "bugs" are worked out. This equipment is the latest in the industry's technological advancement, and is reported to be capable of pitting and stuffing automatically in one operation.

One obstacle the Spanish industry seems to have overcome—but which still plagues the California industry—is the problem of what to do with pits. The Spaniards either crush them for oil, grind them for animal feed, process them into logs for firewood, or simply burn them, depending on which method is more economical. But, on the other hand, they have not yet perfected a method of separating pit fragments from olives in the flotation tanks during the pitting process. The canning and labeling operations and equipment are similar to those in use in California, but somewhat slower.

Grading—Olives are size-graded. For example, sizes of Manzanillas run from 160/180 to 380/400 and Queens from 60/70 to 200/220. (Figures indicate the average number of olives per kilogram.) Each year, during October, it is customary to circulate offers of the official assortment of sizes that exporters are able to offer for sale. This assortment is devised with a view toward distributing equally the full range of sizes and thus making use of the greatest part of the crop. A typical assortment of sizes and the percentages of sizes that are available is as follows:

Gordales (Queens)		Manzanillas
Percent	*Percent*	*Percent*
70/80 – 2	130/140 – 10	180/200 – 3
80/90 – 8	140/150 – 7	200/220 – 12
90/100 – 15	150/160 – 5	240/260 – 25
100/110 – 18	160/180 – 3	280/300 – 20
110/120 – 15	180/200 – 2	300/320 – 15
120/130 – 13	200/220 – 2	340/360 – 15
		380/400 – 10

The figures may vary from year to year, but these can be taken as averages. It should be noted that in this assortment there are no 160/180 Manzanillas nor 60/70 Queens—a result of their limited availability and very high prices.

Packing—Olives are usually packed for export in either of two ways—bulk, or in glass containers not to exceed 1 gallon each. The bulk containers are generally made of wood or fiber glass.

Glass jars also are packed in either of two ways—(1) place-packed by hand, one by one, in symmetrical columns presenting an attractive appearance (this method of packing is on the decline because of increasing labor costs and consumer complaints about difficulty in removing olives from jars); (2) throw-packed (no symmetrical order) by automatic machines. This method is on the increase, as it is more economical and time saving.

Marketing Structure

Considerable advances have been made by the Spanish olive industry and trade during recent years. While some of the most important changes have taken place at the farm level, the marketing sector has also made some worthy advances. The number of packer-exporters has declined, while plant sizes have expanded. Strapped by rapidly rising processing costs and increased tonnage, small processors have had to modernize their facilities to operate profitably. In an effort to obtain the capital required to finance these improvements, mergers have been effected and associations formed. More than 140 processor-exporter firms are forming into 14 or 15 trade associations, reflecting recognition of the need for improvement in the marketing process.

Consolidation will make marketing larger crops more efficient and thus lead to the expansion of export outlets, especially in Eastern Europe and the Middle East. It will also help stabilize domestic and

export prices, as currently olive prices are determined by the large exporter-processors. In addition, olive prices have been affected by prices paid for olive oil. When the price of oil is attractive, many table-olive farmers sell their olives for oil extraction, thus creating a tight supply of table olives. This situation in turn exerts upward pressures on olive prices. The opposite is true when the price of oil is unfavorable. As consolidations take place, product standardization will improve. Several large processor-exporter plants currently are being renovated and modernized, and when completed will be as up-to-date as any in the United States.

Domestic Consumption

Domestic consumption has risen rapidly over the past decade, reflecting rising per capita incomes and higher standards of living. Market promotion, via television, radio, newspapers, and magazines, also has provided a stimulus for increased domestic demand. Much of the increase in personal consumption can be attributed to the Government's Economic Development Plan, which provides, among other things, for annual increases in minimum wages tied to the consumer price index.

Although reliable data are difficult to obtain, Spanish olive consumption is believed to have averaged slightly more than 12,000 tons annually during 1966-70 (Table 7). This level compares with 58,000 tons during 1971-75, a gain of over 300 percent. Growth is expected to continue, with domestic utilization expected to total 68,000 tons in 1975, compared with 59,600 tons the year before. The majority of olives are sold in consumer packs to foodstore chains, with the remainder going to the hotel and restaurant trade. A small quantity is consumed at the farm level.

Olives sold in the domestic market are generally small in size and do not meet standards for Spain's export markets. These olives are usually marketed in plastic bags, with small quantities sold in glass containers and cans.

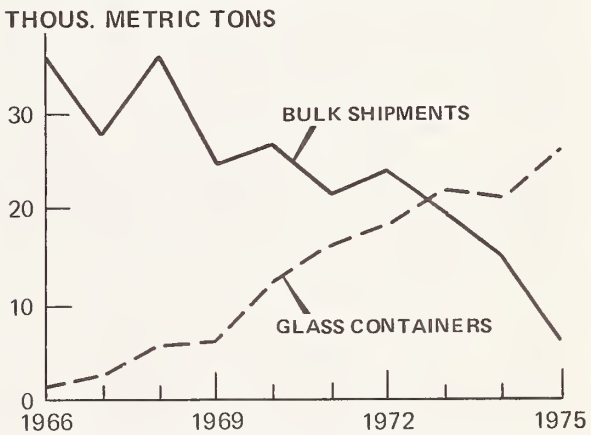
The domestic market is expected to absorb a large portion of the anticipated production increases, especially in years when weather adversely affects sizing and overall quality, as was the case in 1972 and 1975. Home consumption amounted to 41 percent of production during 1970-72, and during 1973-75, was 46 percent of production. This figure is expected to increase moderately.

Foreign Trade

Although domestic usage is increasing, exports remain the major outlet for Spanish production. (Table 7 shows a data series on Spanish exports of all olives; Tables 9, 10, and 11 depict Spain's shipments by country of destination, type of olive, and type of container.) A large portion of Spain's olives are channeled through ACEMESA (Aceitunas de Mesa, S.A.), a trade association of Spanish exporters of green olives.

Generally, Spain's olive exports have shown an upward trend, reflecting increased demand in its primary markets, the United States, Canada, and Western Europe. Exports averaged 72,000 tons during 1971-74, compared with 47,000 tons during the prior 4-year period. There is a concerted industry move to diversify olive exports to additional countries, as currently well over 50 percent of Spain's olive exports are shipped to the United States and Canada. With Government assistance, the industry currently is exploring possible markets in Eastern Europe and the Middle East. With improving economies in these new markets, Spain may well find ready outlets for its olives.

SPAIN: TABLE OLIVE EXPORTS TO THE UNITED STATES, 1966-75



SOURCE: SPANISH MINISTRY OF AGRICULTURE; U.S. DEPARTMENT OF COMMERCE.

Exports to the United States—Spain's largest single market—have traditionally been shipped in bulk form for repacking and sale to the wholesale and retail trades. U.S. importer-repackers import olives in bulk

form and repackage them in glass containers of sizes suitable to the retail and institutional trades. This repacking contributes substantially to the price value of the ultimate product.

However, beginning in the mid-1960's, packing plants in Spain began exporting green olives to the United States in consumer-size containers. Thus, there began a shift from bulk to retail containers, and since that time, U.S. imports of bottled olives from Spain have risen substantially. During 1965-69, the United States imported an average of 18,210 tons of olives from Spain, or about 40 percent of total U.S. olive imports. The majority of these were in bulk form, with bottled olives comprising around 10 percent of the total.

In subsequent years, there was a marked shift toward importation of consumer packs. During 1970-74, U.S. imports of all olives from Spain averaged 40,000 tons. Of this total, 25 percent were bottled olives.

In spite of the recently imposed countervailing duty, U.S. imports of Spanish olives have not declined significantly.

Government Policies and Programs

Olives are considered a "problem crop" by the Spanish Ministry of Agriculture because of inadequate yields, the high cost of harvesting (55 - 85 percent of total production costs), and the deficient structure (mainly excessive fragmentation) of most olive farms. Government policies and programs are aimed at maintaining and encouraging maximum production and utilization of the best green olives for foreign trade, although exportation of table olives provides Spain with only a sizable portion of its total foreign exchange.

The Government is keenly aware of the need for maintaining high export standards, lest lucrative markets be lost to competitor countries. In an attempt to correct this situation, the Government has established an olive improvement program aimed at aiding both producers and exporters of olives. Some of the program's primary objectives are:

- Replacing marginal or low-producing olive trees with forage and other crops, or utilizing existing marginal olive areas for grazing without removing the trees.
- Permanently improving olive orchards by means of replanting, reduction of distance between trees, grafting, irrigation, subsoiling, and drainage as well as other cultural practices that improve output.
- Establishing extensive olive producing orchards in areas, and under conditions, to be determined by the Ministry of Agriculture.
- Strengthening the export sector.

Aid to growers includes: (1) Grants to farmers who improve existing olive lands—i.e., those farmers who apply proper cultural practices as prescribed by the Government; and (2) grants aimed at helping to develop new olive lands.

In the first instance, the Government extends to each participating farmer a nonrepayable grant amounting to 20 percent of his total budget alloted to olive production. On the remaining 80 percent, the farmer is extended low interest credit up to 1 million pesetas ($15,000) or 12,000 pesetas per hectare ($180). The interest rate is 6 percent, with 12-year maturity. However, for the first 4 years, interest is waived. The borrower pays interest only on the remaining 8 years of the loan, plus principal. Many growers have taken advantage of this aid and future crops will likely reflect its results.

In the case of development of new lands, the Spanish Government grants up to 6,000 pesetas ($90) per hectare plus 125 pesetas ($1.88) per tree. However, since good land is at a premium and costly to develop, fewer growers have taken advantage of this support.

Forms of assistance to exporters of green olives are diverse and complex. The measures are designed to stimulate expansion of Spanish olive exports and to improve Spain's balance-of-payments situation. The more prominent of these measures include a direct cash payment (*desgravacion fiscal*) and a variety of grants to Spanish plants constructed within one of the several industrial development zones (*polos de desarrollo*).

The *desgravacion fiscal*, which was made available to the table-olive industry in 1968, is a direct cash payment from the Government to exporters of most Spanish products, including olives. This payment is intended to reimburse the exporter for taxes the exporter may have incurred directly or indirectly in producing or marketing a product.

However, reimbursement does not necessarily always equal the sum of the taxes incurred. Rather, the Ministry of Finance determines a fixed rate of payment for each product, irrespective of taxes actually paid. The one requirement is that the refund must be sufficiently large to cover the 1.5 percent ad valorem tax on commercial transactions. In the exportation of bottled olives, the Ministry of Finance has determined that the cash payment shall be 12 percent of export value.

The *polos de desarrollo*. As part of its export promotion program, the Spanish Government extends various forms of aid to firms that locate physical plant and operations within designated *polos de desarrollo*, or industrial development centers. The grants are designed to encourage investment within given centers. One such center, located in the area around Seville, is within the major olive-growing area of Spain. The center was established in 1964. Companies that have made investments in the Seville center reportedly have received the designated aid. As the Seville area is the primary olive producing, processing, and exporting region in Spain, most of the large Spanish exporters of green olives are in this development center and therefore presumably benefit from the special Government assistance.

Details and amounts of the grants to olive exporters are not available. However, the countervailing duty of 2.9 percent assessed on Spanish olive imports by the United States in 1974 reflects the amount of Government assistance actually extended.

Further, to help with its development plan the Ministry of Agriculture has established agricultural extension-type research centers around the country. These centers are similar in function to the U.S. Extension Service, except that there is no connection with the country's university system. The research is aimed at developing new varieties, improved disease control methods, more efficient cultural techniques, and other matters pertaining to improvement of Spain's agricultural sector.

Prospects

Spain's commercial table-olive production should continue to expand at a moderate pace, assuming the various barriers are removed. It is well within reason to expect harvests in excess of 200,000 tons by the end of this decade. The bulk of the production will still be in green olives. Only insignificant quantities of black olives are expected to be produced, as there are currently no significant plans to increase production of this style of olive.

As production increases, there will be pressures on the Spanish industry to expand both its domestic market and export outlets. In the 1974/75 season, Spain's olive shipments totaled 55,900 tons, with about 63 percent going to the United States. Forecasts for 1975/76 place Spanish olive exports at 66,500 tons, with an even greater percentage going to the U.S. market.

Dependence on the North American market is expected to moderate as (1) More and more of the higher quality olives are channeled to the home market and other foreign outlets, especially in Eastern Europe and possibly the Middle East; (2) Spain moves closer to becoming a member of the European Community; and (3) oversupplies of black olives force California into increased production of Spanish-style green olives.

World demand for olives is expected to continue an upward trend, especially as both Spain and the United States seek to widen exposure of the olive to other parts of the world, particularly in Eastern Europe and the Middle East. An important consideration is the influence of the olive oil price. But presumably, the Spaniards are developing the oil industry so that oil olives will be in plentiful supply, thus moderating oil prices. This trend will induce table-olive producers to channel olives to table use rather than to the oil sector.

Finally, as long as the olive industry accounts for a sizable portion of Spain's foreign exchange earnings, the Government will continue to play a vital role in policies and programs affecting the olive industry.

Right: Spanish olive trees in this grove are planted 150 to the hectare. Most of Spain's commercially important table olive acreage is located in four broad regions: Andalucia in the south, Extremadura in the west, Levante in the southeast, and the Central Plateau.

Above, left: Olive pickers in Seville harvesting the 1975 crop. Light ladders are used to reach fruit near tops of trees. Above: Grove of young olive trees in Seville. Disc harrow is used to break up ground between trees. Left: Workers operating olive sorting equipment.

At right, from to
Traditional metho
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Right: Thes
Seville worker
using hand-operat
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can pit 15-
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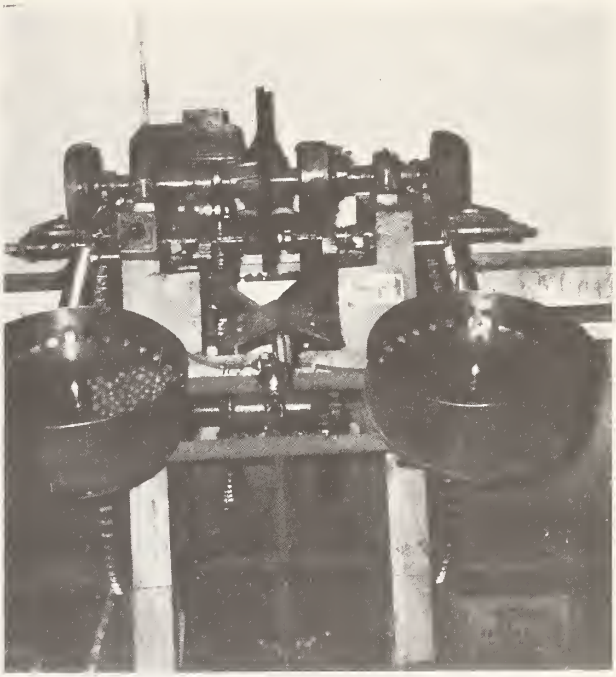

Above: In contrast to hand-operated pitting machines, this automatic equipment can pit 180 olives per minute.

Above: Workers in Seville processing plant operating olive stuffing machines. Left: Place-packing olives in jars by hand. Throw-packing may eventually replace this labor-intensive operation because of rising wage costs.

Appendix

Tables

1. Spanish table olives: Production by variety, calendar years 1960-75
2. Spanish table olives: Production by province and region, calendar years 1973-75
3. Total olive area: By province and region, calendar year 1973
4. Table olive area: By province and region, calendar year 1973
5. Table olive area: Bearing and nonbearing, yield, total production by province and region, calendar year 1973
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7. Spain's supply and distribution of table olives: Marketing years 1966-75
8. Table olives: Average wholesale prices in Seville, graded, unprocessed, calendar years 1970-74
9. Spanish table olives: Exports in bulk, tins, glass; by variety, calendar years 1970-74
10. Spanish table olives: Export in glass or tin containers, by variety and country of destination, calendar years 1970-74
11. Spanish table olives: Exports in bulk, by variety and country of destination, calendar years 1970-74

TABLE 1.–SPANISH TABLE OLIVE PRODUCTION, BY VARIETY, 1960-75

(1,000 metric tons)

Year	Manzanillas and similar varieties	Queens	Other export varieties	Nonexport varieties	Total
1960	27.0	18.0	11.0	(1)	56.0
1961	15.8	13.0	15.0	(1)	43.8
1962	16.0	6.5	11.0	(1)	33.5
1963	17.7	24.2	(1)	15.0	56.9
1964	13.2	4.4	18.0	5.4	41.0
1965	28.0	13.0	3.0	4.1	48.1
1966	22.5	2.2	2.0	2.7	29.4
1967	26.0	35.0	1.5	2.0	64.5
1968	30.0	8.5	9.5	12.9	60.9
1969	40.0	8.0	9.0	3.0	60.0
1970	30.0	13.0	10.0	2.0	55.0
1971	30.0	25.0	15.0	10.0	80.0
1972	45.0	20.0	48.0	41.4	154.4
1973	46.0	30.0	35.0	29.0	140.0
1974	15.0	7.0	35.0	36.0	93.0
1975[2]	75.0	20.0	25.0	22.0	142.0

[1] Data not available.
[2] Preliminary.

SOURCE: Foreign Agricultural Service Attaché Reports.

TABLE 2.–SPANISH TABLE OLIVE PRODUCTION, BY PROVINCE AND REGION, 1973-75[1]

(1,000 metric tons)

Province and region	1973	1974	1975
Albacete	0.1	0.2	0.1
Ciudad Real	–	–	0.1
Cuenca	–	–	–
Guadalajara	0.2	0.1	0.1
Madrid	0.7	0.4	0.4
Toledo	0.4	1.0	0.2
CENTRAL	1.4	1.7	0.9
Alicante	1.2	2.0	3.0
Castellon	–	0.2	0.2
Murcia	0.8	0.8	1.3
Valencia	0.1	0.1	0.1
LEVANTE	2.1	3.1	4.6
Badajoz	21.0	10.5	21.0
Caceres	10.3	14.0	15.0
EXTREMADURA	31.3	24.5	36.0
Almeria	0.2	0.1	0.1
Cadiz	0.6	0.7	0.8
Cordoba	10.0	5.0	15.0
Granada	0.6	0.5	0.5
Huelva	1.5	3.5	3.5
Jaen	–	3.7	4.0
Malaga	3.9	3.0	3.5
Seville	77.4	44.0	107.5
ANDALUCIA	94.2	60.5	134.9
OTHER	0.8	3.5	3.3
Total Spain	129.8	93.3	179.7

[1] Official Spanish Government statistics are not revised to reflect subsequent changes in estimates.

SOURCE: Spanish Ministry of Agriculture, Agricultural Statistical Yearbook, 1975.

TABLE 3.–TABLE OLIVE AREA, BY PROVINCE AND REGION, 1973

(Area in hectares)

Province and region	TOTAL AREA			Table olives	Olives for oil processing
	Nonirrigated	Irrigated	TOTAL		
Albacete	20,230	2,948	23,178	1,635	21,543
Ciudad Real	106,083	16	106,099	25	106,074
Cuenca	45,929	1,741	47,670	–	47,670
Guadalajara	29,670	436	30,106	475	29,631
Madrid	21,853	18	21,871	651	21,220
Toledo	102,640	–	102,640	820	101,820
CENTRAL	326,405	5,159	331,564	3,606	327,958
Alicante	26,399	2,658	29,057	1,835	27,222
Castellon	46,350	368	46,718	388	46,330
Murcia	14,581	2,722	17,303	1,631	15,672
Valencia	31,832	137	31,969	144	31,825
LEVANTE	119,162	5,885	125,047	3,998	121,049
Badajoz	170,000	–	170,000	31,150	138,850
Caceres	76,281	1,849	78,130	13,870	64,260
EXTREMADURA	246,281	1,849	248,130	45,020	203,110
Almeria	7,162	3,357	10,519	258	10,261
Cadiz	27,900	86	27,986	626	27,360
Cordoba	294,745	676	295,421	4,741	290,680
Granada	87,453	11,556	99,009	329	98,680
Huelva	36,562	–	36,562	4,856	31,706
Jaen	393,638	36,541	430,179	–	430,179
Malaga	114,472	2,653	117,125	4,239	112,886
Seville	257,700	2,300	260,000	82,000	178,000
ANDALUCIA	1,219,632	57,169	1,276,801	97,049	1,179,752
OTHER	230,461	14,971	245,432	2,436	242,996
Total Spain	2,141,941	85,033	2,226,974	152,109	2,074,865

SOURCE: Ministry of Agriculture, Statistical Yearbook, 1973.

TABLE 4.–TABLE OLIVES: AREA BY PROVINCE AND REGION, 1973

(Area in hectares)

Province and region	TOTAL AREA		
	Nonirrigated	Irrigated	TOTAL
Albacete	1,578	57	1,635
Ciudad Real	25	–	25
Cuenca	–	–	–
Guadalajara	330	145	475
Madrid	643	8	651
Toledo	820	–	820
CENTRAL	3,396	210	3,606
Alicante	1,814	21	1,835
Castellon	377	11	388
Murcia	1,025	606	1,631
Valencia	144	–	144
LEVANTE	3,360	638	3,998
Badajoz	31,150	–	31,150
Caceres	12,975	895	13,870
EXTREMADURA	44,125	895	45,020
Almeria	84	174	258
Cadiz	616	10	626
Cordoba	4,733	8	4,741
Granada	317	12	329
Huelva	4,856	–	4,856
Jaen	–	–	–
Malaga	3,697	542	4,239
Seville	79,900	2,100	82,000
ANDALUCIA	94,203	2,846	97,049
OTHER	2,300	136	2,436
Total Spain	147,384	4,725	152,109

SOURCE: Spanish Ministry of Agriculture, Annual Agricultural Statistical Yearbook, 1973.

TABLE 5.–TABLE OLIVES: AREA, (BEARING AND NONBEARING), YIELD, TOTAL PRODUCTION, BY PROVINCE AND REGION, 1973

Province and region	BEARING		NONBEARING		TOTAL	YIELD		PRODUCTION
	Nonirrigated	Irrigated	Nonirrigated	Irrigated		Nonirrigated	Irrigated	
	Hectares	*Hectares*	*Hectares*	*Hectares*	*Hectares*	*QM/HA*	*QM/HA*	*Metric tons*
Albaeete	411	57	1,167	–	1,635	2.7	5.0	139
Ciudad Real	25	–	–	–	25	5.0	–	13
Cuenca	–	–	–	–	–	–	–	–
Guadalajara	290	140	40	5	475	4.0	5.0	186
Madrid	638	8	5	–	651	11.0	15.0	714
Toledo	820	–	–	–	820	5.0	–	410
CENTRAL	2,184	205	1,212	5	3,606	6.1	5.3	1,462
Alieante	1,798	20	16	1	1,835	6.7	17.6	1,240
Castellon	363	11	14	–	388	1.0	6.1	43
Murcia	994	580	31	26	1,631	2.0	10.0	779
Valeneia	144	–	–	–	144	5.0	–	72
LEVANTE	3,299	611	61	27	3,998	4.5	10.1	2,134
Badajoz	30,000	–	1,150	–	31,150	7.0	–	21,000
Caeeres	11,800	895	1,175	–	13,870	8.0	9.2	10,263
EXTREMADURA	41,800	895	2,325	–	45,020	7.2	9.2	31,263
Almeria	72	170	12	4	258	6.0	12.0	247
Cadiz	616	10	–	–	626	10.0	20.0	636
Cordoba	4,664	8	69	–	4,741	21.4	24.0	10,000
Granada	307	12	10	–	329	19.0	23.0	611
Huelva	4,856	–	–	–	4,856	3.0	–	1,457
Jaen	–	–	–	–	–	–	–	–
Malaga	3,661	541	36	1	4,239	8.0	17.0	3,849
Seville	77,900	1,600	2,000	500	82,000	9.6	16.5	77,424
ANDALUCIA	92,076	2,341	2,127	505	97,049	9.3	16.2	94,224
OTHER	2,275	132	25	4	2,436	3.3	6.2	780
Total Spain	141,634	4,184	5,750	541	152,109	8.7	13.0	129,863

SOURCE: Spanish Ministry of Agrieulture, Annual Agricultural Statistieal Yearbook, 1973.

TABLE 6.–TABLE OLIVE AREA, BEARING AND NONBEARING, 1950-73

(Area in 1,000 hectares)

Years	Bearing	Nonbearing	Total	Percent change
1950	50.1	(1)	50.1	
1951	40.9	(1)	40.9	-18
1952	47.6	(1)	47.6	16
1953	51.3	(1)	51.3	8
1954	53.3	(1)	53.3	4
1955	70.6	(1)	70.6	32
1956	73.3	(1)	73.3	4
1957	76.7	(1)	76.7	5
1958	71.3	(1)	71.3	-7
1959	69.5	(1)	69.5	-3
1960	72.2	(1)	72.2	4
1961	72.6	(1)	72.6	1
1962	73.1	(1)	73.1	1
1963	68.9	(1)	68.9	-6
1964	64.5	4.4	68.9	0
1965	69.8	3.8	73.6	7
1966	62.5	35.6	98.1	33
1967	98.5	1.3	99.8	2
1968	102.5	5.2	107.7	8
1969	97.4	10.3	107.7	0
1970	113.8	8.2	122.0	13
1971	118.0	9.0	127.0	4
1972	128.1	10.0	138.1	9
1973	145.8	6.3	152.1	10

[1] Data not broken out into bearing and nonbearing.

SOURCE: Spanish Ministry of Agriculture, Annual Agricultural Statistical Yearbook, 1973.

TABLE 7.–SPAIN'S SUPPLY AND DISTRIBUTION OF TABLE OLIVES, MARKETING YEARS 1966-75[1]

(In metric tons)

Year	Beginning stocks	Production	Total supply	Domestic consumption	Exports[2]	Ending stocks
1966	18,500	29,400	47,900	8,500	38,900	500
1967	500	64,500	65,000	(3)	48,500	(3)
1968	(3)	60,900	(3)	(3)	40,000	25,500
1969	25,500	60,000	85,500	15,500	60,000	10,000
1970	10,000	45,000	55,000	13,500	40,000	1,500
1971	1,500	125,500	127,000	32,000	75,000	20,000
1972	20,000	154,400	174,400	86,400	81,000	7,000
1973	7,000	140,000	147,000	43,500	80,000	23,500
1974	23,500	93,000	116,500	59,600	55,900	1,000
1975	1,000	142,000	143,000	68,000	66,500	8,500

[1] Marketing year beginning November 1.
[2] Export varieties to the United States and Canada.
[3] Data not available.

SOURCE: Foreign Agricultural Service Attaché Reports.

TABLE 8.–TABLE OLIVES AVERAGE WHOLESALE PRICES IN SEVILLE, GRADED, UNPROCESSED 1970-1974

(Dollars per kilo)

Year	Manzanillas	Queens
1970[1]	(1)	(1)
1971[1]	(1)	(1)
1972	.63	.59
1973	.58	.56
1974[2]	1.76	1.40

[1] Data not available.
[2] Stuffed Manzanillas and Queens export price.

SOURCE: Foreign Agricultural Service Attaché Reports.

TABLE 9.–SPANISH TABLE OLIVE EXPORTS, IN BULK, TINS, GLASS BY VARIETY, CALENDAR YEARS 1970-74

(In metric tons)

Type and variety	1970	1971	1972	1973	1974
Olives, brined, unpitted, Manzanilla	4,125	3,782	1,655	2,801	5,729
Olives, brined, stuffed with pimento, Manzanilla	24,685	26,089	24,094	22,862	19,554
Olives, brined, unpitted, Gordal	8,743	7,827	9,950	10,349	11,634
Olives, brined, stuffed with pimento, Gordal	7,458	6,315	10,814	9,777	10,337
Other olives, brined, not specified elsewhere	19,868	28,259	24,453	34,975	32,400
Other olives, brined, stuffed, Manzanilla and Gordals	998	1,062	1,051	876	907
Other olives, brined, pitted, Manzanilla and Gordals	1,344	1,203	1,778	1,635	2,136
Total	67,221	74,537	73,795	83,275	82,697

SOURCE: Ministry of Commerce, Annual Trade Yearbooks.

TABLE 10.–SPANISH TABLE OLIVE EXPORTS, IN GLASS OR TIN CONTAINERS, BY VARIETY AND COUNTRY OF DESTINATION, CALENDAR YEARS 1970-74

(In metric tons)

Variety and country of destination	1970	1971	1972	1973	1974
Olives, brined, unpitted, Manzanilla:					
France	–	554	21	7	–
Germany, West	122	143	83	76	96
Italy	215	104	22	62	38
Saudi Arabia	64	203	–	1	72
Other	296	349	443	475	462
Total	697	1,353	569	621	668
Olives, brined, stuffed with pimento, Manzanilla:					
Germany, West	378	449	564	538	758
Sweden	185	196	181	213	225
United States	7,220	9,709	9,190	11,236	10,236
Other	403	497	561	488	595
Total	8,186	10,851	10,496	12,475	11,814
Olives, brined, unpitted, Gordal:					
Australia	223	275	257	233	327
Italy	1,233	1,792	1,792	2,080	2,734
Romania	210	–	–	–	–
United States	1,401	1,585	1,931	2,354	2,166
Other	426	476	477	377	427
Total	3,493	4,128	4,457	5,044	5,654
Olives, brined, stuffed with pimento, Gordal:					
Africa, South	24	18	15	22	30
Australia	45	16	11	11	37
United States	2,389	2,725	3,889	3,983	4,085
Other	83	61	205	160	236
Total	2,541	2,820	4,120	4,176	4,388
Other olives, brined, not specified elsewhere:					
Australia	181	348	312	372	361
France	839	1,608	1,978	2,755	2,589
Germany, West	170	482	537	634	616
Italy	408	1,539	1,044	2,403	2,152
Romania	1,545	–	99	–	–
United Kingdom	110	67	77	140	134
United States	1,303	2,100	3,011	4,302	4,517
Other	343	1,475	772	1,577	1,979
Total	4,899	7,619	7,830	12,183	12,348
Other olives, brined, stuffed, Manzanillas and Gordals:					
Total	894	877	964	833	857
Other olives, brined, pitted:					
Total	287	374	489	589	645
Total Spain	20,997	28,022	28,925	35,921	36,374

SOURCE: Ministry of Commerce, Annual Trade Yearbooks.

TABLE 11.–SPANISH TABLE OLIVE EXPORTS, IN BULK, BY VARIETY AND COUNTRY OF DESTINATION, 1970-74

(In metric tons)

Variety and country of destination	1970	1971	1972	1973	1974
Olives, brined, unpitted, Manzanillas:					
Brazil	1,466	367	136	554	350
Bulgaria	593	147	–	–	–
France	454	607	75	132	14
Italy	404	337	3	39	92
United States	119	488	584	874	950
Other	392	483	330	581	854
Total	3,428	2,429	1,128	2,180	2,260
Olives, brined, stuffed with pimento, Manzanilla:					
Canada	1,655	2,199	1,564	1,567	1,393
United Kingdom	153	94	116	50	79
United States	14,352	12,552	11,660	8,502	6,010
Other	339	393	258	368	258
Total	16,499	15,238	13,598	10,487	7,740
Olives, brined, unpitted, Gordal:					
Canada	850	821	1,183	1,213	1,190
Italy	392	358	506	674	2,354
United States	3,524	2,134	3,040	2,191	1,580
Other	484	386	764	1,227	856
Total	5,250	3,699	5,493	5,305	5,980
Olives, brined, stuffed with pimento, Gordal:					
Canada	233	135	946	1,112	1,539
United States	4,512	3,274	5,634	4,399	4,069
Other	172	66	114	90	341
Total	4,917	3,475	6,694	5,601	5,949
Olives, brined, not specified elsewhere:					
Brazil	250	956	1,706	3,988	1,703
Bulgaria	2,496	3,417	3,688	5,018	3,765
Canada	443	669	596	441	657
Dominican Republic	325	334	468	209	259
France	3,483	4,685	2,391	3,901	5,744
Italy	2,514	5,484	2,869	3,519	3,282
Romania	261	–	–	–	–
Switzerland	267	359	323	433	528
United States	3,961	3,194	3,104	3,187	2,261
Venezuela	367	600	721	1,011	864
Other	602	942	757	1,085	989
Total	14,969	20,640	16,623	22,792	20,052
Other olives, brined, stuffed, Manzanillas and Gordals:					
Total	104	185	87	43	50
Other olives, brined, pitted, Manzanillas and Gordals:					
Total	1,057	829	1,289	1,046	1,491
Total Spain	46,224	46,495	44,912	47,454	43,522

SOURCE: Ministry of Commerce, Annual Trade Yearbooks.

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